History of science 3813-001: Science in the ancient world.
Spring 2009

Class meets MWF 12.30 – 1.20, PHSC 212

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Office hours: Wednesday 1.30 – 2.00 p.m.

Introduction
Ancient explanations of the natural world were, from a modern standpoint, for the most part utterly wrong. The period is nevertheless of considerable importance for the history of science. In classical Greece arose a new way of looking at nature. Thinkers came up with non-mythological, rational explanations. They developed mathematics as a discipline and applied it to some natural phenomena. These are the vestiges of the Western scientific tradition.

In this course, the thoughts of Greek thinkers therefore will constitute the main subject, although we will also pay some attention to the Ancient Near East and the Roman world. The fields covered will be medicine, the mathematical sciences (including astronomy), and general ideas about nature.

General rules
Everyone is expected to keep up with the reading schedule and to participate in class discussion of the reading. Exams are given both over the assigned readings and over the information the instructor gives in class. If the students have missed a class, it is their responsibility to find out what has been taught or announced.

It is the policy of the university to excuse the absence of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays. Please see me in advance.

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so that we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

Evaluation
Students will be evaluated by essays, exam, and participation in class. The maximum number of points obtainable is 500.

The first part of the course will be evaluated by take-home essays on assigned topics. The first essay, due February 2, counts for 50 points, the second and third each 100 points. (Total for essays: 250 points).

The second part will be evaluated by the final exam only. The final exam counts for 250 points.
**Essays**

Essays have a dual purpose: on the one hand, they serve to assess whether the students have understood the questions discussed in class and can interpret the readings in a way that makes sense. On the other hand, they are formal writing exercises. Students have to be able to put their views forward in an academic manner, well argued and with references to the sources. Essays will be graded both for their content and their formal properties. Please read carefully the instructions for essays, which will be distributed in the first weeks of the course.

**Course readings**

The required textbooks for the course are:
- David Lindberg, *The beginnings of western science* (Chicago)

The following texts are put on D2L:

(A few other short texts will be distributed during class.)
Reading schedule (the schedule may be subject to modifications during the course).

week 1. Introduction

Jan. 19 (Martin Luther King day, no class)
21 Introduction
23 Lindberg, chapter I.

week 2. Dreams in the ancient world

26 Oppenheim, *Ancient Mesopotamia*, 289-305
28 Ascepius 229-233; Holowchak 156-164
30 Dreams, in Lloyd, 252-259; Aristotle, On prophecy in sleep.

week 3-4. First Greek ideas on nature

Febr. 2 Hesiodus, from Theogony; Xenophanes, in Barnes, 40-47.
   Essay 1 due
4 Precursors, Thales, Anaximander, in Barnes, 3-23.
6 9 Parmenides, Zeno, in Barnes, 77-91, 99-108
11 Empedokles, in Barnes, 111-161
13 Anaxagoras, in Barnes, 185-198

week 5-6. Ancient Greek medicine

16 Alcmaeon, in Barnes, 36-39
18 Oath, canon, tradition in medicine, in Lloyd, 67-86
20 Sacred disease, in Lloyd, 237-251
23 Airs, waters, places, in Lloyd, 148-169
25 Epidemics, prognosis, aphorisms (fragments), in Lloyd.
27

week 7. Pythagoras and Pythagoreanism

March 2 Pythagoras and Pythagoreanism, in Barnes, 28-35, 162-173
   Essay 2 due
4 Burkert, *Lore and science*
6

week 8. Greek philosophy and science in the fifth and fourth centuries BC

9 (Sophists. Socrates)
11 (Origin and function of philosophical schools)
13
week 9. (March 16, 18, 20) Spring vacation, no class

week 10. Plato

March 23 Plato, from the Republic

**Essay 3 due**

25 Plato, from Timaeus

27

week 11. Epicurus

30 Leucippus and Democrotus, in Barnes, 201-202, 203-223

April 1 Epicurus, Letter to Herodotus

3

week 12-13. Aristotle

6 Aristotle, from Physics

8 Aristotle, from On the heavens

10 Aristotle, from On animals

13

week 13-14. Mathematics; Alexandrian science

15 Lindberg, chapter 5

17 Euclid

20 (astronomy: Ptolemy)

22 Heroon, Pneumatics

24 (Archimedes)

week 15. Science in late antiquity

27 Asclepius, 132-138

29

May 1

week 16 (final exam preparation period)

4 t.b.a.

6 t.b.a.

8 t.b.a.